Chemistry 245L Course Syllabus – Spring 2013

Honors Laboratory in Separations and Analytical Characterization of Organic and Biological Compounds

Faculty Adviser: Professor Tiani

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Lab Manager: Dr. Reid Haslup

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TA OFFICE HOURS

• The TA office hours will be announced during the week of lab check-in.
• Do not wait until the night before or the day of your lab to contact your TA for help.
• TA office hours will be held in Morehead Labs Room 408a.

COURSE OBJECTIVES

• To provide students with the opportunity to learn a variety of chromatographic and spectroscopic techniques.
• To provide students with an opportunity to develop practical laboratory skills.
• To teach students how to make reliable and accurate observations and measurements.
• To teach students how to interpret and report experimental results in a scientific manner.
• To continue developing a students critical thinking and problem solving skills.

GRADUATE RESEARCH CONSULTANT

The Chemistry 245L lab has a significant research component, making this lab very different from other labs you will take. Over the course of the semester you will be working with a Graduate Research Consultant (GRC), Mr. Steven Reeber (sreeber@email.unc.edu), who will assist you with the research process and with your research projects. Mr. Reeber has taught this lab before and he brings an extensive amount of experience and knowledge to the lab.

The Office for Undergraduate Research (OUR), www.unc.edu/depts/our, sponsors the GRC Program. You should also be aware that you may be able to use this “research-exposure course” to meet a requirement of the Carolina Research Scholars Program (http://www.unc.edu/depts/our/students/students_crsp.html). I and the GRC program encourage you to visit the OUR website, www.unc.edu/depts/our, to learn about how you can become involved in undergraduate research, research opportunities, scholarship and creative performance while you are at Carolina.
LAB CHECK-IN

• Lab check-in for Chemistry 241L will take place the week of January 14th.
• Meet in Chapman 125 on your scheduled lab day and time.
• Registered students who do not show up for their scheduled lab check-in will automatically be dropped from the lab.
• Every student must have a spring 2013 Chemistry 245L Lab Manual (Course Pack Publishing, 2nd Floor of Student Stores). The forms required to check-in are contained in the lab manual and are required in order to check in.

NOTE: Using an old lab manual or a lab manual other than the spring 2013 manual will be treated as an Honor Code Violation.

COURSE PRE- AND COREQUISITES

Prerequisites: Chemistry 101, 101L, 102 and 102L.
Pre- or Corequisites: Chemistry 241H.

It is an honor code violation to be enrolled in a course while lacking the proper pre- or co-requisites

Note: If you drop Chemistry 241H or switch into a Chemistry 241 class you must drop Chemistry 241H.

TEXTBOOKS & EQUIPMENT

• Spring 2013 Chemistry 245L Lab Manual – Required. Purchase from UNC Student Stores, Course Pack Publishing. Every student must purchase a lab manual. The forms required to check-in are contained in the lab manual and are required to be allowed to check into lab.
• Laboratory notebook. Pages must be pre-numbered and it must have carbonless duplicate pages. You may use an old lab notebook if it meets the criteria listed here. Alpha Chi Sigma (AXE) chemistry fraternity will be selling lab notebooks outside of Morehead Labs 102 the week of lab check-in for $10.00 (cash or check).
• Scientific calculator.
• Laptop computer.
• Lab goggles. Please note that the Department of Chemistry laboratory program no longer permits the use of safety glasses.
  o If you have never had a chemistry lab at UNC you will receive a free pair the day of lab check-in. You will receive instructions during the lab check-in lecture.
If you have had a chemistry lab at UNC and you forget your lab goggles you will have to go to Morehead Labs 102 and purchase a new pair.

- **Lab Coat – Required:**
  - Part of the lab notebook royalties goes towards providing each student with a disposable lab coat.
  - You may purchase a nicer, full size lab coat from the bookstore, but this cost would fall on the student. If you decide to use your own lab coat the department must approve the type of lab coat before the start of labs. Lab coats that only come to the waist, for instance, are not acceptable.
  - Lab coats must stay in the lab room, they may not be taken with you when you leave lab.

**STUDENT LAPTOP COMPUTERS**

- There are a number of experiments you perform in this laboratory course that require you to have your laptop. At the start of each experiment, the lab manual will state whether your laptop will be required or not for that experiment.
- Every student is required to bring their laptop computer when instructed, regardless of whether you will be working with a partner or in groups.
- If you forget to bring your laptop to lab you will not be allowed to perform that days experiment. We will allow you to make up the lab but we will penalize you 10 points for not coming to lab prepared.
- It is your responsibility to make sure your laptop is working properly. If you are having problems with your laptop you will need to resolve those problems before your scheduled lab, otherwise you will need to borrow a laptop from a friend.

**SAKAI**

- The 245L syllabus, software, announcements, grades and other important lab information will be available on Sakai ([https://sakai.unc.edu](https://sakai.unc.edu)).
- Lab reports are submitted through the “Assignment” feature on Sakai so it is important that you have access to the Sakai site for your lab section.
- If you cannot login to Sakai, please email Dr. Tiani (tiani@email.unc.edu).

**ATTENDANCE & LAB MAKE-UP POLICY**

- Read the section titled “Attendance Policy and Lab Absences” in the *Introduction to Chemistry 245L* chapter of the lab manual.
- You may not receive more than two excused absences (non-medical).

**GRADING AND GRADING POLICIES**

The letter grades for the course will be based on your overall percent score from the below *weighted* areas.
7 Lab Reports (100 points each)         58 %
6 Pre-Labs (5 points each)              2 %
11 Graded Lab Notebooks (10 points each) 5 %
Group Work and Lab Performance          10 %
  • Group Evaluation (90 points)
  • Research Project Flow Chart (50 points)
  • Chemicals and Material List (50 points)
Group Research Poster Presentation (100 points) 10 %
Group Research Paper (200 points)        15 %

Total                                     100 %

• Your TA will grade all your reports and assignments throughout the semester. However, the lab instructor, not your TA, will determine all final lab grades.

• You will be assigned a letter grade based on your standing in your given lab section.

• Different sections may have different cutoffs because of differences in each sections average and class distribution.

GROUP WORK

Group work will be an integral part of this lab and your laboratory experience. Each student will be assigned to a group during the first lab period and will remain with that group throughout the semester. All the lab work, including the Research Project, will be carried out as a group. The reason for the emphasis on group work is to teach you to work efficiently as a research team in order to achieve a common goal.

During a typical lab period there is a lot of work to be accomplished in only a 3-hour period; standards must be prepared, glassware must be cleaned, samples must be prepared for analysis, computers and instruments must be set up, and calculations must be performed. The only way to complete all the required work and accomplish the goals of the lab is to work effectively as a team. This will mean learning to lead in some instances and to take a supportive role in other instances. It also means that each group member must listen to their fellow group members and allow everyone to contribute. A portion of your lab grade will be based on your ability to work in a group and to achieve the set lab goals as a group. I should emphasize that your group work grade is not simply based on your ability to work together, but to achieve the experimental goals of the lab (lab performance).

LAB REPORTS

• The criteria for how to write the formal and informal lab reports are provided in the Introduction to Chemistry 245L chapter of the lab manual.
• The due dates for each lab report will be posted on Sakai under the “Documents” tab in the navigation bar.

• There is no collaboration on the writing of lab reports, this includes working up the data, answering experiment questions, discussing your data, and constructing plots. All the work within your report must be your own. The exception to this is the group research paper that will be written at the end of the semester (Experiment 7).

• If you are having difficulties writing your report or have questions, seek help from your TA.

• Lab reports are submitted electronically through the “Assignment” feature on Sakai. The instructions for uploading lab reports on Sakai are located on Sakai under the “Documents” tab in the left side navigation bar.

LATE LAB REPORTS

• Late lab reports must be emailed to Dr. Tiani (tiani@email.unc.edu). DO NOT email your report to your TA, do not try to upload your report late, and do not attempt to turn in a paper copy of your report.

• It is the responsibility of the student to verify that their lab report was properly uploaded to Blackboard and submitted by the scheduled deadline.

• Lab reports turned in late will be penalized 10% per day.

• Late lab reports must be received by Dr. Tiani no later than 48 hours past the scheduled due date; lab reports received later than 48 hours with no extension will receive a zero.

PRE-LAB ASSIGNMENTS

• A pre-lab assignment will be due at the beginning of each lab period, with the exception of the week of lab check-in.

• Read the section titled “Pre-Lab Assignments” in the Introduction to Chemistry 245L chapter of the lab manual. The specific criteria for how to complete the pre-lab assignments are provided on the pages within this section.

LAB NOTEBOOKS

• Students must turn in the duplicate pages from their lab notebooks at the end of each lab period. If you leave lab without submitting your lab notebook pages, you will receive a zero for that experiments lab notebook grade.

• The specific requirements for how to maintain a lab notebook, as well as what should go into the lab notebook, are provided in the lab notebook section of the Introduction to Chemistry 245L chapter of the 245L Lab Manual.

RESEARCH PROJECT & PAPER

• Each group will be assigned a real world research problem at the beginning of the semester with a series of questions to answer.
• Each group will have the entire semester to research their problem, to design experiments that can answer the questions that have been posed and to distribute the experimental workload among the group members.

• The last four weeks of the semester have been reserved for groups to work on their projects. This time is independent research time and it is up to each group to determine how to use their time in order to achieve their research goals.

• Each group will present their data at a poster session for faculty, graduate students and fellow students.

• Each group will also write a formal research report on their project and findings.

• The goals of the research project are to provide students with an opportunity to solve a real chemical problem, to determine which analytical methods must be used to solve the problem, and to provide students with an opportunity for independent research based on experiments they have designed.

• The specific guidelines for the poster presentation and the research paper are presented in Chapter 7 of the Chemistry 245L Lab Manual.

• A component of the group work and lab performance grade will come from writing a flow chart to show your groups experimental strategy for solving the assigned problem. In addition, each group will submit a list of chemicals and equipment that will be needed to carry out the group’s experimental work.

• One member from each group will be responsible for electronically uploading the flowchart and the chemical & material list on Sakai. The due dates for each of these items will be posted on Sakai under the “Documents” tab in the navigation bar.

• Each group member will be responsible for a major component of the paper to research and write. Once each group member has completed their research, all the group members will have to come together and determine how to organize and write the overall paper. All group members must participate in writing the paper and organizing it into a cohesive and well-written paper. Do not simply assign the task of writing the paper to one group member.

RESEARCH PROJECT PRESENTATION

In addition to writing a group research paper, each group will also present their research problem and results in poster format during a poster session held at the end of the semester. The poster session will afford each group the opportunity to educate their fellow classmates, as well as invited instructors and graduate students, on their specific project and how they approached tackling the problem(s). There will be a number of discussions regarding the research project and presentation throughout the semester.
HONOR CODE

The Department of Chemistry faculty adopted the following policy on September 9, 1977.

“Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, final examination, research proposals laboratory results and reports) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on assignments which are not to be collected.”

Additional information regarding the Honor Code at UNC-CH can be found at the following website: [http://www.unc.edu/depts/honor/](http://www.unc.edu/depts/honor/)

The following situations below will be treated as honor code violations based on the requirements specified within the syllabus and the Introductory Chapter of the Chemistry 245L lab manual, where the lab polices are discussed in more detail.

- **Plagiarism.** The ideas presented in your report must be your own. If you present someone else’s ideas or work (from books, old lab reports, the Web, the lab manual) as your own, this is plagiarism. You can present facts from an outside source, as long as you properly reference the source.

- **Allowing students to use your work as their own.** Do not allow your partner or other students to have access to your lab reports. You may share data if you collected the data together, but everything else (calculations, graphs, tables) must be done alone.

- **Using old lab reports, even if you just want to glance over them,** is an honor code violation.

- **Do not rearrange a paragraph or some other piece of work** that is not yours in the hope of disguising the work as your own.

- **Unauthorized collaboration.** If you need help you must talk with your TA. All lab reports must be written independently.

- **Using an old lab manual** from a previous semester.